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ABSTRACT

Doctorate-granting institutions and independent medical colleges were surveyed to gather systematic, comparative information on international scientific activities supported by the federal government, private foundations, and other sources. Data were gathered on these activities' nature and scope, the academic disciplines involved, and the world regions with which they are linked. The focus is on scientific and engineering activities that involve interchange with other countries. The data are presented in tabular form, with a brief narrative summary. (HSE)

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International Scientific Activities at Selected Institutions, 1975-76 and 1976-77

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AMERICAN COUNCIL ON EDUCATION

J. W. Peltason, *President*

The American Council on Education, founded in 1918, is a council of educational organizations and institutions. Its purpose is to advance education and educational methods through comprehensive voluntary and cooperative action on the part of American educational associations, organizations, and institutions.

The Higher Education Panel is a survey research program established by the Council for the purpose of securing policy-related information quickly from representative samples of colleges and universities. *Higher Education Panel Reports* are designed to expedite communication of the Panel's survey findings to policy-makers in government, in the associations, and in educational institutions across the nation.

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Frank J. Atelsek

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As always we acknowledge our appreciation of the institutions making up the Higher Education Panel and its representatives on each campus. We are grateful for their continued cooperation and assistance in our survey efforts.

Highlights

This report should be of considerable interest to people in education and government service, not only because of the dearth of information on international scientific activities, but also because of the continuing emphasis on the role of developed countries in sharing scientific knowledge. Further, the U.S. government plans to use the data from this survey in preparing a paper for the United Nations Conference on Science and Technology for Development, to be held in 1979.

Student Flow

- During 1975-76 and 1976-77, 76 percent of the 203 institutions responding to this survey had enrolled five or more foreign graduate science and engineering students.
- 88 percent of the institutions with foreign students enrolled students from the Far East; only 15 percent enrolled students from East Europe, including the Soviet Union.
- Public institutions constituted 63 percent of the respondents and 66 percent of institutions enrolling foreign students; universities constituted 71 percent of respondents and 81 percent of those enrolling foreign students.
- 44 percent of the responding institutions arranged during 1975-76 and 1976-77 for some of their own science and engineering graduate students to travel abroad as part of their studies; of these, 73 percent arranged travel to Latin America and only 15 percent to Japan.

Faculty Activity

- Nearly two-thirds of the responding institutions had faculty who taught abroad during the past two years; three-fourths of the respondents had faculty who collaborated on research with their foreign counterparts; and three-fourths had faculty who traveled abroad for research purposes.
- Proportionally more participating public than private institutions had science faculty involved in international research, travel, and teaching in all world regions except Black Africa and the Near and Middle East.

Formal Programs

- Two-thirds of the responding institutions offered at least one formal research or teaching program associated with at least one foreign region.
- Among institutions offering research programs, 32 percent had such programs in the behavioral sciences, 26 percent in the biological sciences, 24 percent in the physical sciences; only 11 percent offered programs in mathematics.
- Of respondents offering teaching programs, 33 percent had such programs in the behavioral sciences, and only 7 percent in the mathematical sciences.
- Western Europe and Latin America were the regions most often associated with research programs, and Latin America was the most frequent focus of teaching programs.
- A larger proportion of public than of private institutions offered both research and teaching programs with a foreign emphasis.

International Scientific Activities at Selected Institutions, 1975-76 and 1976-77

The nation's colleges and universities engage in a multitude of international scientific activities supported not only by the federal government but also by private foundations and other sources. Despite the importance of these activities, little systematic, comparative information exists on their nature and scope, the academic disciplines involved, and the world regions with which they are linked.

As a step toward filling this information void, the National Science Foundation asked the American Council on Education, through its Higher Education Panel, to survey doctorate-granting institutions and independent medical colleges. An earlier Panel survey examined changes between 1972 and 1976 in the level of support for all foreign area research activities within organized centers at a selected group of research universities (Panel Report No. 32, December 1976). The present survey differed in emphasis, focusing on scientific and engineering activities which involve interchange with other countries and on the world areas affected by those activities.

Methods Summary

The Higher Education Panel is a continuing survey research program created in 1971 at the American Council on Education. Its primary objective is to conduct limited-scale surveys on policy-related topics of current interest both to the higher education community and to government agencies.

The Panel is a stratified sample of 760 institutions broadly representative of the more than 3,000 colleges and universities located in the United States. For any given survey, the entire Panel or an appropriate subset may be used.

For the purpose of this survey, the Panel was limited to medical colleges and to those institutions which award doctorate degrees. The questionnaire (Appendix A) was mailed in April 1977 to the 258 colleges and universities in the Panel that met either of these criteria. After two mail follow-ups and a final canvass by telephone,

203 institutions (79 percent) had provided usable data by the deadline for returning questionnaires. (See Appendix B for a comparison of respondents and nonrespondents.)

To assist in interpreting the results of this survey, the following terms are defined as key reference points.

eligible population: the 311 medical colleges and doctorate-granting institutions in the United States. All these institutions would have been surveyed had they been members of the Higher Education Panel.

survey sample: the group of 258 institutions in this population that are in the Panel and thus were included in the survey.

respondents: the 203 colleges, universities, and medical schools that completed questionnaires.

participants: the number of responding institutions within each reporting category that indicated varying proportions of participation in some form of international scientific activity within the scope of this survey.

The data are presented by control (public, private) and by type (all institutions, universities). The reader is reminded that the results reported here represent the 203 respondents only and may not accurately reflect the entire population of 311 doctorate-granting and medical institutions.

Findings

The primary world regions under study in this report were grouped into the following categories: (1) Western Europe, (2) Latin America and the Caribbean, (3) East Europe and the Soviet Union, (4) the Far East, (5) Japan, (6) South Asia, (7) Black Africa (south of the Sahara), (8) the Near and Middle East and North Africa, and (9) all others. The last page of the questionnaire (Appendix A) gives a more detailed listing of the countries included in each of these regions.

The survey questionnaire inquired into three general areas: students, faculty, and programs. Specifically, the institution was asked to indicate, for the 1975-76 and 1976-77 academic years, (1) whether it had enrolled five or more foreign graduate

science and engineering students or arranged to send any of its own graduate science students abroad for study; (2) any of its science and engineering faculty had taught at a foreign institute, collaborated with foreign researchers or faculty, or traveled abroad for research purposes; and (3) it offered any formal teaching or research programs in the sciences dealing with the specified world regions.

It should be noted that the discussion of the findings that follow presents the data from two perspectives: (1) all responding institutions, a category which includes universities and other institutions classified as four-year colleges and (2) universities as a separate aggregation. The latter made up 71 percent of the responding institutions.

Student Flow

During the past two academic years (1975-76 and 1976-77), more than three-fourths of the survey respondents had enrolled five or more graduate science and engineering students from other regions of the world (Table 1). The largest proportion of participating institutions (88 percent) enrolled graduate science students from the Far East; 75 percent enrolled students from the Near and Middle East and North Africa; 74 percent, from South Asia; and 72 percent, from Latin America and the Caribbean. East Europe, including the Soviet Union, was least well represented: Only 15 percent of participating institutions enrolled five or more science students from this region.

Examining the institutions separately by control reveals several differences in the extent of international activities. Public institutions constituted three-fifths of the respondents and two-thirds of the participants. Among participants alone, however, proportionately more private than public institutions enrolled foreign graduate science students from most of the world regions covered. The exceptions were East Europe and the Far East: Equal proportions of public and of private institutions enrolled students from these regions.

Universities accounted for seven of ten respondents to the survey but eight of ten participants in this activity. Proportionately more private than public universities enrolled foreign graduate students from South Asia, Black Africa, Latin America, and Western Europe.

Percentage of Participant Universities Enrolling Five or More Foreign Graduate Science Students

World Region	Public Universities (N=79)	Private Universities (N=46)
Far East, excluding Japan	92	89
Near and Middle East and North Africa	81	80
South Asia	77	85
Latin America and the Caribbean	73	78
Western Europe	62	70
Black Africa (South of the Sahara)	56	63
All Other	54	50
Japan	46	46
East Europe, including U.S.S.R.	16	17

Though a fairly large proportion of these colleges and universities enrolled foreign graduate students, relatively few arranged for their own graduate science and engineering students to travel abroad for study at foreign institutions. Only 44 percent of all responding institutions sent science students abroad during the past two years (Table 2). Nearly three-fourths of those institutions which arranged such travel sent students to study in Latin America, and two-thirds to study in Western Europe. In contrast, only 15 percent arranged for their graduate students to go to Japan, and about one-fifth each to the Near and Middle East, to East Europe, and to South Asia.

Public institutions, more frequently than private institutions, made arrangements to send their students to Latin America, the Far East, Japan, and East Europe. Private institutions more often arranged for their graduate students to study in Black Africa and in Western Europe.

Generally, universities were more likely to send their graduate students to each world region than were respondents as a whole. Moreover, the differences between

Percentage of Participant Institutions Arranging Foreign Travel For Their Graduate Science Students

World Region	Public Institutions (N=60)	Private Institutions (N=29)
Latin America and the Caribbean	83	52
Western Europe	65	72
Far East, excluding Japan	33	24
All Other	32	28
Black Africa (South of the Sahara)	25	34
East Europe, including U.S.S.R.	23	17
South Asia	22	24
Near and Middle East and North Africa	20	17
Japan	17	10

public and private institutions mentioned in the preceding paragraph were found also between public and private universities considered separately.

Faculty Activity

To determine the extent of faculty involvement in international activities, the survey asked the institution to indicate whether any of its engineering and science faculty (1) had taught at colleges or universities in other parts of the world, (2) had collaborated in research with foreign faculty or researchers, or (3) had traveled abroad for research purposes.

More than three-fifths (64 percent) of the responding institutions reported that faculty members had taught abroad during the past two years (Table 3). They were most likely to indicate that faculty members had taught in Western Europe (78 percent of participating institutions), Latin America (53 percent), and the Near and Middle East (50 percent).

Faculty from three-fourths of the responding institutions had collaborated in research with their counterparts in foreign countries (Table 4). The proportions of

institutions reporting such research collaboration with people from various regions ranged from 88 percent for Western Europe to 36 percent for Black Africa.

Similarly, faculty from three-fourths of the responding institutions had traveled abroad for research purposes in both the 1975-76 and 1976-77 academic years (Table 5). Nine in ten of the participants indicated that faculty had traveled to Western Europe; seven in ten, to Latin America; and about half, to the Near and Middle East, to East Europe, and to Japan.

In general, for nearly all world regions except Black Africa and the Near and Middle East, proportionately more public than private institutions had science and engineering faculty involved in international research, travel, and teaching activities; this difference was especially marked at the university level (Tables 3-5).

Formal Programs

Respondents were asked to indicate whether they had formally organized research or teaching programs in specific science and engineering fields dealing with other regions of the world.

Two-thirds of the responding institutions operated at least one formal program associated with at least one foreign region: 62 percent had at least one research program and 57 percent had at least one teaching program. Of the participating institutions offering research programs, one-third had such programs in the behavioral and social sciences, one-fourth in the biological sciences, and one-fourth in the physical and environmental sciences (Table 6). Only one of nine responding institutions offered a research program in the mathematical sciences which was linked to an international science activity, and only about one in six offered such a research program in medicine.

Overall, the world regions most likely to be connected with research programs were Western Europe and Latin America: Mathematics and physical sciences programs were concentrated in Western Europe (70 percent and 65 percent, respectively, of participants reported such programs); behavioral sciences research programs focused on Latin America and Western Europe (69 percent and 60 percent, respectively). Latin America

was the most likely focus of research programs in agriculture (79 percent), behavioral and social sciences (69 percent), biological sciences (55 percent), and medicine (52 percent).

The subject-matter emphasis of teaching programs in the sciences and engineering was slightly different. One-third of responding institutions conducted internationally oriented programs in the behavioral and social sciences, 18 percent had such programs in agriculture and natural resources, 18 percent had such programs in engineering, and 18 percent in the biological sciences (Table 7). Only 7 percent offered foreign-related teaching programs in mathematics.

Again, Latin America was the primary focus of these teaching programs: In all but two fields, proportionately more institutional participants had programs associated with Latin America than with any other world region. In mathematics, however, 60 percent of the participating institutions had teaching programs dealing with Western Europe; and in engineering, 49 percent had programs dealing with the Near and Middle East.

Overall, public institutions were more likely than were private institutions to run both research and teaching programs with a foreign emphasis (Tables 8-11). The exceptions to this generalization were research programs in the behavioral sciences and teaching programs in mathematics, where relatively more private than public institutions were involved.

Likewise, with respect to universities alone, proportionately more of those in the public than in the private sector offered research programs dealing with world regions in all fields except the behavioral and social sciences. And relatively more universities in the public than in the private sector offered internationally-oriented teaching programs in all but two fields--mathematics and the physical sciences.

At public universities, the preponderance of both research and teaching programs centered on Western Europe and Latin America (Tables 14 and 15). Private universities were not so regionally concentrated in their international activities. In addition to

offering science and engineering research programs dealing with Western Europe and Latin America, a relatively large proportion operated research and teaching programs in Black Africa and the Near and Middle East as well (Tables 16 and 17).

Directory of Participating Institutions

Appendix C lists those institutions which offer formal programs in research or teaching dealing with specified world regions. Of the 136 survey respondents which operated some research or teaching program of this nature, 76 percent agreed to be identified in this list.

Table 1

Institutions Enrolling Five or More Foreign Science and Engineering Graduate Students, 1975-76 and 1976-77

Institutional Characteristics	Number		Percent of Participating Institutions by Region of Student Origin								
	Responding Institutions	Participating Institutions	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	All Other
All Institutions	203	155	59	72	15	88	41	74	51	75	47
Public	127	103	56	69	15	88	40	69	46	74	48
Private	76	52	65	77	15	88	44	83	62	77	46
Universities	144	125	65	75	17	91	46	80	58	81	53
Public	87	79	62	73	16	92	46	77	56	81	54
Private	57	46	70	78	17	89	46	85	63	80	50

Note: The survey sample included only doctorate-granting institutions and medical colleges.

Table 2

Institutions Arranging Foreign Travel for Science and Engineering Graduate Students, 1975-76 and 1976-77

Institutional Characteristics	Number		Percent of Participating Institutions by Region of Student Destination								
	Responding Institutions	Participating Institutions	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	All Other
All Institutions	203	89	67	73	21	30	15	22	28	19	30
Public	127	60	65	83	23	33	17	22	25	20	32
Private	76	29	72	52	17	24	10	24	34	17	28
Universities	144	70	71	70	26	34	14	29	31	21	31
Public	87	45	71	80	29	40	16	29	31	22	36
Private	57	25	72	52	20	24	12	28	32	20	24

Note: The survey sample included only doctorate-granting institutions and medical colleges.

Table 3

Institutions with Science and Engineering Faculty Teaching Abroad, 1975-76 and 1976-77

Institutional Characteristics	Number		Percent of Participating Institutions								
	Responding Institutions	Participating Institutions	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	All Other
All Institutions	203	129	78	53	26	30	29	26	22	50	25
Public	127	86	83	56	27	33	30	27	17	48	26
Private	76	43	70	49	26	26	26	23	30	53	23
Universities	144	108	80	54	31	31	29	24	22	51	25
Public	87	68	84	57	32	34	29	25	18	50	26
Private	57	40	73	48	28	25	28	23	30	53	23

Note: The survey sample included only doctorate-granting institutions and medical colleges.

Table 4

Institutions with Science and Engineering Faculty Engaging in Collaborative International Research, 1975-76 and 1976-77

Institutional Characteristics	Number		Percent of Participating Institutions								
	Responding Institutions	Participating Institutions	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	All Other
All Institutions	203	154	88	66	44	40	51	43	36	52	32
Public	127	95	87	75	45	42	52	46	36	53	41
Private	76	59	88	51	42	37	49	37	37	51	19
Universities	144	115	92	68	54	47	55	48	43	60	38
Public	87	70	90	76	54	49	57	49	43	60	49
Private	57	45	96	56	53	44	51	47	44	60	22

Note: The survey sample included only doctorate-granting institutions and medical colleges.

Table 5

Institutions with Science and Engineering Faculty Traveling Abroad for Research Purposes, 1975-76 and 1976-77

Institutional Characteristics	Number		Percent of Participating Institutions								
	Responding Institutions	Participating Institutions	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	All Other
All Institutions	203	152	89	70	51	44	50	41	41	53	38
Public	127	94	90	78	53	47	51	45	38	50	49
Private	76	58	86	59	48	40	48	36	45	59	21
Universities	144	116	92	74	61	51	53	47	47	59	42
Public	87	71	94	80	62	52	52	48	45	54	54
Private	57	45	89	64	60	49	56	44	51	67	24

Note: The survey sample included only doctorate-granting institutions and medical colleges.

Table 6

Formally Organized Research Programs Dealing with Foreign Regions, by Selected Science Fields, 1977: All Responding Institutions (N=203)

Field of Science	Participating Institutions		Percent of Participating Institutions								
	Number	Percent	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	All Other
Agriculture and Natural Resources	42	21	31	7	19	26	29	40	36	45	29
Behavioral and Social Sciences	65	32	60	69	45	40	25	37	51	31	22
Biological Sciences	53	26	49	55	19	11	21	23	19	19	28
Engineering	39	19	54	49	38	26	31	10	8	38	13
Mathematical Sciences	23	11	70	39	26	26	26	17	9	17	22
Medicine	33	16	30	52	18	15	21	18	21	27	9
Physical and Environmental Sciences	49	24	65	53	39	20	18	18	16	29	33

Note: The survey sample included only doctorate-granting institutions and medical colleges.

Table 7

Formally Organized Teaching Programs Dealing with Foreign Regions, by Selected Science Fields, 1977:
All Responding Institutions (N=203)

Field of Science	Participating Institutions		Percent of Participating Institutions								
	Number	Percent	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	All Other
Agricultural and Natural Resources	36	18	31	67	22	36	33	42	53	33	31
Behavioral and Social Sciences	67	33	58	60	43	49	42	37	52	37	22
Biological Sciences	37	18	35	62	19	16	16	24	16	27	30
Engineering	37	18	38	46	16	14	16	5	8	49	14
Mathematical Sciences	15	7	60	33	20	20	13	13	20	27	7
Medicine	28	14	39	50	14	4	7	11	14	43	7
Physical and Environmental Sciences	35	17	46	49	20	20	20	26	23	31	31

Note: The survey sample included only doctorate-granting institutions and medical colleges.

Table 8

Formally Organized Research Programs Dealing with Foreign Regions, by Selected Science Fields, 1977:
All Responding Public Institutions (N=127)

Field of Science	Participating Institutions		Percent of Participating Institutions								
	Number	Percent	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	All Other
Agricultural and Natural Resources	37	29	30	81	19	24	24	41	32	43	30
Behavioral and Social Sciences	40	31	65	75	40	40	23	35	48	28	13
Biological Sciences	37	29	51	59	24	11	19	22	14	16	27
Engineering	26	20	62	50	38	31	27	12	12	38	15
Mathematical Sciences	16	13	69	31	31	25	19	13	6	6	25
Medicine	22	17	41	59	14	14	18	18	14	23	5
Physical and Environmental Sciences	32	25	66	50	38	19	22	25	16	22	38

Note: The survey sample included only doctorate-granting institutions and medical colleges.

Table 9

Formally Organized Teaching Programs Dealing with Foreign Regions, by Selected Science Fields, 1977:
All Responding Public Institutions (N=127)

Field of Science	Participating Institutions		Percent of Participating Institutions								
	Number	Percent	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	All Other
Agricultural and Natural Resources	29	23	28	72	21	34	31	41	45	31	31
Behavioral and Social Sciences	44	35	59	64	34	48	36	30	45	34	14
Biological Sciences	27	21	41	63	22	19	19	26	15	19	33
Engineering	25	20	40	48	24	16	12	8	12	44	16
Mathematical Sciences	9	7	67	22	22	11	0	0	22	11	0
Medicine	19	15	42	47	11	0	5	11	5	32	0
Physical and Environmental Sciences	22	17	41	45	18	23	23	36	18	27	41

Note: The survey sample included only doctorate-granting institutions and medical colleges.

Table 10

Formally Organized Research Programs Dealing with Foreign Regions, by Selected Science Fields, 1977:
All Responding Private Institutions (N=76)

Field of Science	Participating Institutions		Percent of Participating Institutions								
	Number	Percent	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	All Other
Agricultural and Natural Resources	5	7	40	60	20	40	60	40	60	60	20
Behavioral and Social Sciences	25	33	52	60	52	40	28	40	56	36	36
Biological Sciences	16	21	44	44	6	13	25	25	31	25	31
Engineering	13	17	38	46	38	15	38	8	0	38	8
Mathematical Sciences	7	9	71	57	14	29	43	29	14	43	14
Medicine	11	14	9	36	27	18	27	18	36	36	18
Physical and Environmental Sciences	17	22	65	59	41	24	12	6	18	41	24

Note: The survey sample included only doctorate-granting institutions and medical colleges.

Table 11

Formally Organized Teaching Programs Dealing with Foreign Regions, by Selected Science Fields, 1977:
All Responding Private Institutions (N=76)

Field of Science	Participating Institutions		Percent of Participating Institutions								
	Number	Percent	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	All Other
Agricultural and Natural Resources	7	9	43	43	29	43	43	43	86	43	29
Behavioral and Social Sciences	23	30	57	52	61	52	52	52	65	43	39
Biological Sciences	10	13	20	60	10	10	10	20	20	50	20
Engineering	12	16	33	42	0	8	25	0	0	58	8
Mathematical Sciences	6	8	50	50	17	33	33	33	17	50	17
Medicine	9	12	33	56	22	11	11	11	33	67	22
Physical and Environmental Sciences	13	17	54	54	23	15	15	8	31	38	15

Note: The survey sample included only doctorate-granting institutions and medical colleges.

Table 12

Formally Organized Research Programs Dealing with Foreign Regions, by Selected Science Fields, 1977:
All Responding Universities (N=144)

Field of Science	Participating Institutions		Percent of Participating Institutions								
	Number	Percent	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	All Other
Agricultural and Natural Resources	41	28	29	78	17	24	27	39	34	44	27
Behavioral and Social Sciences	57	40	61	68	47	37	26	39	49	33	23
Biological Sciences	43	30	47	53	21	9	19	23	23	21	33
Engineering	37	26	57	51	41	24	32	11	8	38	14
Mathematical Sciences	21	15	71	43	29	29	29	19	10	19	19
Medicine	19	13	37	53	26	21	32	26	26	26	16
Physical and Environmental Sciences	45	31	67	51	40	20	18	16	16	29	31

Note: The survey sample included only doctorate-granting institutions and medical colleges.

Table 13

Formally Organized Teaching Programs Dealing with Foreign Regions, by Selected Science Fields, 1977:
All Responding Universities (N=144)

Field of Science	Participating Institutions		Percent of Participating Institutions								
	Number	Percent	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	All Other
Agricultural and Natural Resources	33	23	30	70	21	36	33	42	52	30	30
Behavioral and Social Sciences	58	40	57	57	47	50	43	38	53	40	26
Biological Sciences	30	21	30	63	20	17	17	27	20	30	33
Engineering	36	25	39	47	17	14	17	6	8	47	14
Mathematical Sciences	15	10	60	33	20	20	13	13	20	27	7
Medicine	16	11	44	50	19	0	6	6	13	38	13
Physical and Environmental Sciences	31	22	45	45	19	19	19	23	23	32	29

Note: The survey sample included only doctorate-granting institutions and medical colleges.

Table 14

Formally Organized Research Programs Dealing with Foreign Regions, by Selected Science Fields, 1977:
All Responding Public Universities (N=87)

Field of Science	Participating Institutions		Percent of Participating Institutions								
	Number	Percent	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	All Other
Agricultural and Natural Resources	36	41	28	81	17	22	22	39	31	42	28
Behavioral and Social Sciences	33	38	67	73	42	33	24	36	45	30	12
Biological Sciences	30	34	50	57	27	10	20	23	17	17	33
Engineering	24	28	67	54	42	29	29	13	13	38	17
Mathematical Sciences	14	16	71	36	36	29	21	14	7	7	21
Medicine	12	14	50	58	17	25	25	25	25	17	8
Physical and Environmental Sciences	28	32	68	46	32	18	21	21	14	21	36

Note: The survey sample included only doctorate-granting institutions and medical colleges.

Table 15

Formally Organized Teaching Programs Dealing with Foreign Regions, by Selected Science Fields, 1977:
All Responding Public Universities (N=87)

Field of Science	Participating Institutions		Percent of Participating Institutions								
	Number	Percent	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	All Other
Agricultural and Natural Resources	27	31	26	74	19	33	30	41	44	26	30
Behavioral and Social Sciences	36	41	56	58	36	47	36	28	47	36	17
Biological Sciences	21	24	33	62	24	19	19	29	19	19	43
Engineering	24	28	42	50	25	17	13	8	13	42	17
Mathematical Sciences	9	10	67	22	22	11	0	0	22	11	0
Medicine	10	11	50	40	10	0	0	0	10	20	0
Physical and Environmental Sciences	18	21	39	39	17	22	22	33	17	28	39

Note: The survey sample included only doctorate-granting institutions and medical colleges.

Table 16

Formally Organized Research Programs Dealing with Foreign Regions, by Selected Science Fields, 1977:
All Responding Private Universities (N=57)

Field of Science	Participating Institutions		Percent of Participating Institutions								
	Number	Percent	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	All Other
Agricultural and Natural Resources	5	9	40	60	20	40	60	40	60	60	20
Behavioral and Social Sciences	24	42	54	63	54	42	29	42	54	38	38
Biological Sciences	13	23	38	46	8	8	15	23	38	31	31
Engineering	13	23	38	46	38	15	38	8	0	38	8
Mathematical Sciences	7	12	71	57	14	29	43	29	14	43	14
Medicine	7	12	14	43	43	14	43	29	29	43	29
Physical and Environmental Sciences	17	30	65	59	41	24	12	6	18	41	24

Note: The survey sample included only doctorate-granting institutions and medical colleges.

Table 17

Formally Organized Teaching Programs Dealing with Foreign Regions, by Selected Science Fields, 1977:
All Responding Private Universities (N=57)

Field of Science	Participating Institutions		Percent of Participating Institutions								
	Number	Percent	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	All Other
Agricultural and Natural Resources	6	11	50	50	33	50	50	50	83	50	33
Behavioral and Social Sciences	22	39	59	55	64	55	55	55	64	45	41
Biological Sciences	9	16	22	67	11	11	11	22	22	56	11
Engineering	12	21	33	42	0	8	25	0	0	58	8
Mathematical Sciences	6	11	50	50	17	33	33	33	17	50	17
Medicine	6	11	33	67	33	0	17	17	17	67	33
Physical and Environmental Sciences	13	23	54	54	23	15	15	8	31	38	15

Note: The survey sample included only doctorate-granting institutions and medical colleges.

Appendix A: Survey Instrument

AMERICAN COUNCIL ON EDUCATION
ONE DUPONT CIRCLE
WASHINGTON, D. C. 20036

HIGHER EDUCATION PANEL
(202) 833-4757

April 4, 1977

Dear Higher Education Panel Representative:

Enclosed is the thirty-seventh survey of the Higher Education Panel. This survey was requested by the National Science Foundation and covers international scientific activities of doctorate-granting institutions and medical schools.

Through programs supported by government, foundations, and other resources, higher education institutions engage in many forms of international scientific activity. Despite their importance there is very little systematic, comparative information on (1) the types of these university activities, (2) the regions of the world with which these activities take place, and (3) the academic fields involved.

Information from more than one campus source may be needed to complete this survey. Possible sources may include directors or coordinators of international programs, directors or coordinators of research, graduate deans, and chief academic officers. As the Higher Education Panel Representative, however, you are in the best position to determine the most appropriate respondent and we leave that judgment to you.

Please include information from medical schools and other academic components of your institution which may be geographically separate from the main campus but are actually part of your institution.

Please note that this survey is designed to learn whether institutions are engaged in the specified activities with respect to the designated world regions, but not their magnitude. We are not seeking information of numbers of students or faculty or numbers of projects.

You will notice that the sponsor is seeking permission to publish listings of individual institutions participating in various international scientific activities. Be assured that your institution will not be included in these listings unless you specifically agree by so indicating on the questionnaire.

We would appreciate receiving the completed questionnaire by April 25, 1977. A return envelope is enclosed for your convenience. If you have any questions or problems, please do not hesitate to telephone us collect at (202) 833-4757.

Thank you for your assistance.

Sincerely,

Frank Atelsek

Frank Atelsek, Director

Encls.

OMB #099-R0265
exp. 6/78

AMERICAN COUNCIL ON EDUCATION

HIGHER EDUCATION PANEL SURVEY NO. 37

SURVEY OF INTERNATIONAL SCIENTIFIC ACTIVITIES AT SELECTED COLLEGES AND UNIVERSITIES, 1975-76 AND 1976-77

Please answer the questions below by indicating *yes* or *no* for each of the designated world regions (see definitions over).

Please circle the appropriate response code in questions 4 and 5.

In questions 1 through 4, the activity should have occurred in both years (1975-76 and 1976-77) in the particular world region, but it need not be the same student or faculty member to result in a *yes*.

In question 4, consultation by faculty members should be included, provided the consultations were arranged through the institution. Also, collaborative research may be performed either with or without travel to the other world region.

In answering question 5, please use your best judgment. "Formally organized research and/or teaching programs" is intended to mean those which have some form of institutional recognition, such as inclusion in catalogs, listings or programs or projects, separate announcements, or specifically budgeted funds. If you have graduate students who have come from another region without special institutional arrangements and who are taking regular science or engineering courses, this would produce a *yes* answer to question 1 but not to question 5.

Institutional Activities	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	All Other
1. *During both this and the preceding school year*, did your institution have five or more science or engineering graduate students from any of these world regions?	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )
2. *During both this and the preceding school year*, did your institution arrange for any science or engineering students pursuing graduate degrees at your institution to travel to any of these world regions for part of their work?	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )
3. *During both this and the preceding school year*, did any of your science or engineering faculty teach at colleges and universities in any of these world regions?	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )	yes ( ) no ( )

4. *During both this and the preceding school year,* did any of your science or engineering faculty collaborate with researchers or faculty from any of these world regions and/or travel in these regions for research purposes? (If "yes", please circle the appropriate response code.)

Response codes for yes: *1 = collaborative research only*
2 = travel for research purposes only
3 = both travel for research purposes and collaborative research

yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )

5. Does your institution now have any formally organized research and/or teaching programs dealing with this area in the following major science categories: (If "yes", please circle the appropriate response code.)

Response codes for yes: *1 = research programs only*
2 = teaching programs only
3 = both research and teaching programs

agriculture and natural resources	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )
behavioral and social sciences	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )
biological sciences	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )
engineering	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )
mathematical sciences	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )
medicine	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )
physical and environmental sciences	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )	yes 1 2 3 no ( )

6. We hope to publish listings of institutions based on the responses to this survey. May we include your institution in these listings?

yes ( ) no ( )

THANK YOU FOR YOUR ASSISTANCE.

PLEASE RETURN THIS FORM BY APRIL 25, 1977.

IF YOU HAVE ANY QUESTIONS, PLEASE CALL COLLECT AT 202-833-4757.

PLEASE RETAIN A COPY OF THIS SURVEY FOR YOUR RECORDS.

PERSON COMPLETING THIS FORM:

NAME: _____

OFFICE: _____

PHONE: _____

REGIONS OF THE WORLD

(This is a guide, *not* a complete listing of all countries)

Western Europe: Includes Greenland, Iceland, Ireland, United Kingdom, Portugal, Spain, Switzerland, Austria, Italy, Greece, West Germany, Norway, Sweden and Finland.

Latin America and the Caribbean: Includes Central America, Mexico, South America, and the Caribbean.

East Europe including U.S.S.R: Includes Albania, Bulgaria, Czechoslavakia, East Germany, Hungary, Poland, Romania, and Yugoslavia.

Far East excluding Japan: Includes China, Burma, Thailand, and the Philippines.

Japan: Japan only.

South Asia: Includes India, Afghanistan, Bangladesh, Pakistan, and Sri Lanka.

Black Africa (South of the Sahara): South Africa and Rhodesia should be reported in "All Other".

Near and Middle East and North Africa: Includes Turkey, Iran, Saudia Arabia, and other Middle East countries. Included in North Africa are Mauritania, Sahara, Morocco, Algeria, Tunisia, Libya, and Egypt.

All Other

MAJOR SCIENCE AND ENGINEERING CATEGORIES

Agriculture and natural resources: Includes agriculture (except agricultural economics), forestry, food sciences and technology, natural resources management, and other related fields.

Behavioral and social sciences: Includes psychology, political science or government, sociology, agricultural economics, area studies, anthropology, archeology, demography, economics, geography, linguistics, and international relations. *Do not* include history, education, social work, public administration, or other applied fields.

Biological sciences: Includes biology, botany, zoology, ecology, embryology, entomology, anatomy, biochemistry, biophysics, microbiology, pathology, pharmacology, physiology, and other related fields.

Engineering: Includes aeronautical, architectural, biomedical, ceramic, chemical, civil, electrical, geological, industrial, mechanical, mining, nuclear, petroleum, and other engineering subfields.

Mathematical sciences: Includes mathematics, statistics, computer sciences, data processing, systems analysis, and related fields.

Medicine: Includes nursing, dentistry, medicine, optometry, osteopathic medicine, pharmacy, physical therapy, public health, podiatry, and veterinary medicine.

Physical and environmental sciences: Includes chemistry, earth sciences, physics, geology, meteorology, astronomy, metallurgy, geophysics, marine sciences, oceanography, and other physical and environmental sciences.

Appendix B: Response to the Survey

Of the 258 institutions surveyed, 79 percent provided usable responses. Survey respondents closely resembled nonrespondents in all respects except enrollment size. Institutions enrolling between 3,000 and 5,000 graduate students had lower-than-average response rates (66 percent), as did institutions enrolling between 1,000 and 5,000 full-time-equivalent students (69 percent).

Institutions enrolling between 10,000 and 20,000 FTE students and between 1,000 and 3,000 graduate students had the highest response rates (84 percent each).

The respondents differed from the eligible population in several respects. The respondent group was composed of larger proportions of universities (71 percent vs. 60 percent) and of publicly controlled institutions (63 percent vs. 56 percent). The eligible population included a larger proportion of small institutions: 47 percent enrolled fewer than 1,000 graduate students (compared with 39 percent of respondents), and 40 percent enrolled fewer than 5,000 total enrollment (FTE) (compared with 27 percent of respondents).

Table B-1

Comparison of Respondents and Nonrespondents

Characteristics	Population (N=311)	Panel (N=258)	Respondents (N=203)	Nonrespondents (N=55)	Response Rate
Total	100.0	100.0	100.0	100.0	78.7
Control					
Public	56.3	62.8	62.6	61.8	78.9
Private	43.7	37.2	37.4	38.2	78.4
Type					
University	59.5	69.8	70.9	74.5	77.8
Four-year college	40.5	30.2	29.1	25.5	80.8
Census Region					
East	30.2	28.2	28.9	25.9	80.6
Midwest	22.7	24.3	24.4	24.1	79.0
South	30.5	30.6	29.4	35.2	75.6
West	16.6	16.9	17.4	14.8	81.4
Graduate Enrollment					
≤ 200	19.0	12.1	11.7	13.7	76.7
201-1,000	28.3	26.2	26.9	23.5	81.5
1,001-3,000	36.7	42.7	45.2	33.3	84.0
3,001-5,000	10.0	11.7	9.6	19.6	65.5*
> 5,000	6.0	7.3	6.6	9.8	72.2
FTE Enrollment					
< 1,000	17.4	11.2	10.3	14.5	72.4
1,000-4,999	22.8	19.0	16.7	27.3	69.4
5,000-9,999	26.7	30.6	32.0	25.5	82.3
10,000-19,999	22.8	27.5	29.6	20.0	84.5
≥ 20,000	10.3	11.6	11.3	12.7	76.7

* Falls short of overall response rate by more than 10 percent.

Appendix C: Directory of Participating Institutions

Included in this listing are institutions which had at least one formal research or teaching program in a scientific or engineering field in any of the specific world regions. Be aware that the list does not include all respondents. Normally, no institutional identification is provided in these reports. However, because the sponsor felt this listing would be valuable, a question was included on the survey specifically requesting the institution's permission to list its programs in the directory. Thus, of 136 respondents which had any of the programs covered in the survey, 76 percent checked "Yes" to that item, granting their permission.

APPENDIX C

Directory of U.S. Higher Education Institutions Having Formally Organized Research Programs Dealing with World Regions 1977

Field of Science and Name of Institution	Control	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	Other
AGRICULTURE AND NATURAL RESOURCES										
Alabama										
Auburn Univ., Main	Public		+		+		+			+
Arizona										
Univ. of Arizona	Public		+						+	
California										
Stanford Univ.	Private	+	+		+	+	+	+	+	
Univ. of California, Riverside	Public	+	+					+	+	+
Connecticut										
Univ. of Connecticut, Main	Public		+							
Hawaii										
Univ. of Hawaii at Manoa	Public		+		+	+	+		+	
Illinois										
Univ. of Illinois, Urbana	Public	+	+	+	+	+	+	+	+	+
Kansas										
Kansas State Univ.	Public		+							
Massachusetts										
Clark Univ.	Private							+	+	
Tufts Univ.	Private	+	+	+	+	+	+	+	+	+
Michigan										
Michigan State Univ.	Public						+		+	
Univ. of Michigan, Ann Arbor	Public						+	+		
Missouri										
Univ. of Missouri, Columbia	Public		+				+	+	+	
Montana										
Univ. of Montana	Public									
New Mexico										
New Mexico State Univ., Main	Public		+							
New York										
SUNY College for Environmental Science	Public	+	+	+	+	+	+	+	+	+
North Carolina										
North Carolina State Univ., Raleigh	Public		+							
North Dakota										
North Dakota State Univ.	Public		+							
Ohio										
Bowling Green State Univ., Main	Public	+	+	+			+		+	+
Case Western Reserve Univ.	Private					+				
Ohio State Univ., Main	Public		+							
Oregon										
Oregon State Univ.	Public	+	+	+	+	+	+	+		+
Rhode Island										
Univ. of Rhode Island	Public	+	+			+				
South Carolina										
Clemson Univ.	Public		+							
South Dakota										
South Dakota State Univ.	Public		+							
Tennessee										
Univ. of Tennessee, Knoxville	Public		+				+			
Utah										
Utah State Univ.	Public	+	+					+	+	+
Virginia										
Virginia Polytechnic Institute and State Univ.	Public	+		+	+	+			+	+

Directory of U.S. Higher Education Institutions Having Formally Organized Research Programs Dealing with World Regions 1977
(cont'd)

Field of Science and Name of Institution	Control	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	Other
AGRICULTURE AND NATURAL RESOURCES (cont'd)										
Washington										
Univ. of Washington	Public		+							
West Virginia										
West Virginia Univ.	Public							+		
Wisconsin										
Univ. of Wisconsin, Madison	Public	+	+		+	+	+	+		+
BEHAVIORAL AND SOCIAL SCIENCES										
Alabama										
Auburn Univ., Main	Public		+							
Univ. of Alabama	Public	+	+	+	+	+	+	+	+	
Arizona										
Univ. of Arizona	Public	+	+					+		
California										
Stanford Univ.	Private	+	+	+	+	+	+	+	+	+
Univ. of California, Irvine	Public		+							
Univ. of Southern California	Private		+	+		+				
Colorado										
Univ. of Colorado, Main	Public		+						+	
Connecticut										
Univ. of Connecticut, Main	Public	+	+	+			+	+	+	
District of Columbia										
American Univ.	Private	+	+		+				+	
George Washington Univ.	Private		+					+		
Hawaii										
Univ. of Hawaii at Manoa	Public				+	+	+			
Illinois										
Northern Illinois Univ.	Public				+			+		
Univ. of Illinois, Chicago Circle	Public	+	+		+			+		
Univ. of Illinois, Urbana	Public	+	+	+	+	+	+	+	+	+
Indiana										
Indiana Univ. at Indianapolis	Public	+	+							
Univ. of Notre Dame	Private		+						+	
Iowa										
Univ. of Iowa	Public	+								
Louisiana										
Louisiana State Univ., Baton Rouge	Public		+							
Massachusetts										
Boston Univ.	Private	+	+	+	+		+	+	+	+
Clark Univ.	Private							+		
Northeastern Univ.	Private	+								
Tufts Univ.	Private	+	+	+	+	+	+	+	+	+
Michigan										
Michigan State Univ.	Public	+							+	
Univ. of Michigan, Ann Arbor	Public	+	+	+			+	+	+	
Missouri										
Univ. of Missouri, Columbia	Public	+	+		+			+		
New York										
Cornel Univ. Endowed College	Private	+	+							+
New York Univ.	Private	+					+			
Saint John's Univ.	Private				+					
SUNY Health Science Center, Buffalo	Public		+	+	+			+		
SUNY at Stony Brook, Main	Public	+	+	+						
SUNY at Albany	Public	+	+							
Syracuse Univ., Main	Private		+	+			+	+		
Univ. of Rochester	Private			+			+			+
North Carolina										
Duke University	Private	+	+	+	+	+	+	+	+	+
Univ. of North Carolina, Chapel Hill	Public		+	+	+	+		+		

Directory of U.S. Higher Education Institutions Having Formally Organized Research Programs Dealing with World Regions 1977
(cont'd)

Field of Science and Name of Institution	Control	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	Other
BEHAVIORAL AND SOCIAL SCIENCES (cont'd)										
Ohio										
Case Western Reserve Univ.	Private						+			
Miami Univ., Main	Public	+	+							
Ohio Univ., Main	Public		+				+	+		
Pennsylvania										
Lehigh University	Private							+		+
Univ. of Pittsburgh, Main	Public	+	+	+		+	+			
Rhode Island										
Brown University	Private	+	+	+	+			+		+
Univ. of Rhode Island	Public	+								
Tennesse										
Meharry Medical College	Private							+		
Univ. of Tennessee, Knoxville	Public	+	+	+			+			
Texas										
Rice University	Private	+	+	+	+	+	+	+	+	
Texas Christian Univ.	Private	+	+	+	+	+	+	+	+	+
Univ. of Texas at Arlington	Public		+		+			+		+
Univ. of Texas at Austin, Main	Public	+	+	+	+	+	+	+	+	
Virginia										
Virginia Polytechnic Institute and State Univ.	Public	+	+		+			+		+
Wisconsin										
Univ. of Wisconsin, Madison	Public	+	+	+	+	+	+	+	+	+
BIOLOGICAL SCIENCES										
Alabama										
Auburn Univ., Main	Public		+		+		+			
Arizona										
Univ. of Arizona	Public	+	+			+	+	+	+	+
California										
Stanford Univ.	Private	+	+					+	+	+
Univ. of California, Riverside	Public			+						+
Univ. of Southern California	Private		+							
Colorado										
Univ. of Northern Colorado	Public		+						+	
Connecticut										
Univ. of Connecticut, Main	Public	+	+							
Illinois										
DePaul Univ.	Private									+
Illinois State Univ.	Public						+			
Northern Illinois Univ.	Public		+							
Univ. of Illinois, Chicago Circle	Public	+	+		+					
Univ. of Illinois, Urbana	Public	+	+	+	+	+	+	+	+	+
Indiana										
Ball State Univ.	Public		+							
Indiana Univ. at Indianapolis	Public	+	+							
Univ. of Notre Dame	Private						+	+		
Louisiana										
Louisiana State Univ., Baton Rouge	Public		+							
Michigan										
Michigan State Univ.	Public									+
Univ. of Michigan, Ann Arbor	Public	+	+							
Minnesota										
Univ. of Minnesota, Mayo Graduate School of Medicine	Private	+	+		+	+	+			+
Missouri										
Univ. of Missouri, Columbia	Public	+								
New York										
Albany Medical College	Private	+								
Cornell Univ. Endowed College	Private							+		+
Rockefeller Univ.	Private		+							
SUNY at Stony Brook, Main	Public	+		+						
SUNY at Albany	Public	+	+							
Univ. of Rochester	Private	+								

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BIOLOGICAL SCIENCES (cont'd)										
North Carolina										
Duke Univ.	Private		+							
North Carolina State Univ., Raleigh	Public	+	+							
Univ. of North Carolina at Chapel Hill	Public	+								
Ohio										
Case Western Reserve Univ.	Private	+				+	+	+	+	
Ohio State Univ., Main	Public		+							
Univ. of Toledo	Public			+						
Oregon										
Oregon State Univ.	Public	+	+	+	+	+	+	+	+	+
Rhode Island										
Brown Univ.	Private								+	
Univ. of Rhode Island	Public	+								
Texas										
Texas Christian Univ.	Private	+	+	+	+	+	+	+	+	+
Univ. of Texas at Arlington	Public		+							
Univ. of Texas at Austin, Main	Public	+	+			+				
Virginia										
Eastern Virginia Medical School	Private					+				
Virginia Polytechnic Institute and State Univ.	Public	+				+				+
Wisconsin										
Univ. of Wisconsin, Madison	Public	+	+	+		+	+	+		+
ENGINEERING										
Alabama										
Auburn Univ., Main	Public	+	+							+
Univ. of Alabama	Public		+		+				+	
Arizona										
Univ. of Arizona	Public	+	+	+	+			+		+
California										
Stanford Univ.	Private				+				+	
Univ. of Southern California	Private	+	+			+				+
Colorado										
Colorado State Univ.	Public	+	+		+	+			+	
Univ. of Colorado, Main	Public	+								
District of Columbia										
George Washington Univ.	Private						+		+	
Hawaii										
Univ. of Hawaii at Manoa	Public					+				
Illinois										
Univ. of Illinois, Urbana	Public	+	+							
Indiana										
Univ. of Notre Dame	Private	+		+		+			+	
Michigan										
Univ. of Michigan, Ann Arbor	Public	+	+	+					+	
Minnesota										
Univ. of Minnesota, Minneapolis-Saint Paul	Public	+								
Missouri										
Univ. of Missouri, Rolla	Public		+							
New Mexico										
New Mexico State Univ., Main	Public	+								
New York										
Columbia Univ., Main	Private			+		+				
Polytechnic Institute, New York	Private		+							
Rensselaer Polytechnic Institute	Private			+						
SUNY Health Science Center, Buffalo	Public								+	
SUNY at Stony Brook, Main	Public	+		+	+				+	
Univ. of Rochester	Private		+							

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ENGINEERING (cont'd)										
North Carolina										
North Carolina State Univ., Raleigh	Public	•							•	
Ohio										
Case Western Reserve Univ.	Private	•	•	•						
Oregon										
Oregon State Univ.	Public			•						
Pennsylvania										
Lehigh Univ.	Private	•	•	•	•	•				
Rhode Island										
Brown Univ.	Private								•	
Univ. of Rhode Island	Public		•							
South Dakota										
South Dakota State Univ.	Public			•						
Tennessee										
Univ. of Tennessee, Knoxville	Public	•		•	•	•		•		
Texas										
Univ. of Texas at Arlington	Public				•					
Univ. of Texas at Austin, Main	Public	•	•			•				
Virginia										
Virginia Polytechnic Institute and State Univ.	Public	•	•	•	•		•		•	•
West Virginia										
West Virginia Univ.	Public					•				
Wisconsin										
Univ. of Wisconsin, Madison	Public	•	•	•		•	•	•	•	•
MATHEMATICAL SCIENCES										
California										
Stanford Univ.	Private		•							
Univ. of Southern California	Private	•	•							
District of Columbia										
American University	Private	•							•	
Georgia										
Georgia State Univ.	Public	•							•	
Indiana										
Univ. of Notre Dame	Private	•				•				
Michigan										
Univ. of Michigan, Ann Arbor	Public	•								
Minnesota										
Univ. of Minnesota, Minneapolis-Saint Paul	Public	•								
New York										
Univ. of Rochester	Private	•	•		•	•	•			
North Carolina										
North Carolina State Univ., Raleigh	Public		•							
Ohio										
Miami Univ., Main	Public	•					•			•
Oregon										
Oregon State Univ.	Public	•								
Tennessee										
Univ. of Tennessee, Knoxville	Public			•	•	•		•		
Texas										
Texas Christian Univ.	Private	•	•	•	•	•	•	•	•	•
Univ. of Texas at Arlington	Public	•								
Univ. of Texas at Austin, Main	Public	•	•	•						

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MATHEMATICAL SCIENCES (cont'd.)										
Virginia										
College of William and Mary, Main	Public									•
Virginia Polytechnic Institute and State Univ.	Public	•	•	•	•	•				•
West Virginia										
West Virginia Univ.	Public				•					
Wisconsin										
Univ. of Wisconsin, Madison	Public	•	•	•	•	•	•			•
MEDICINE										
Alabama										
Univ. of Alabama in Birmingham	Public	•	•							
Arizona										
Univ. of Arizona	Public	•					•			
California										
Loma Linda Univ.	Private				•			•		
Stanford Univ.	Private		•			•				
Univ. of California, Riverside	Public			•						
Hawaii										
Univ. of Hawaii at Manoa	Public		•		•	•	•			
Illinois										
Univ. of Illinois Medical Center, Chicago	Public	•							•	
Indiana										
Indiana Univ. at Indianapolis	Public	•	•							
Kansas										
Kansas State Univ. of Agriculture and Applied Science	Public							•		
Maryland										
Univ. of Maryland, Baltimore Professional Schools	Public		•						•	
Michigan										
Michigan State Univ.	Public	•								
Univ. of Michigan, Ann Arbor	Public	•	•		•	•				
Missouri										
Saint Louis Univ., Main	Private				•					
New York										
New York Medical College	Private		•							
SUNY Health Science Center, Buffalo	Public								•	
Univ. of Rochester	Private	•	•	•		•			•	•
North Carolina										
Univ. of North Carolina, Chapel Hill	Public		•				•	•	•	
Ohio										
Case Western Reserve Univ.	Private			•		•	•	•	•	•
Tennessee										
Meharry Medical College	Private							•		
Virginia										
Virginia Polytechnic Institute and State Univ.	Public		•							•
West Virginia										
West Virginia Univ.	Public		•							
Wisconsin										
Medical College of Wisconsin	Private								•	
Univ. of Wisconsin, Madison	Public	•	•					•	•	
PHYSICAL AND ENVIRONMENTAL SCIENCES										
Alabama										
Auburn Univ., Main	Public		•							
Univ. of Alabama	Public	•		•						

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PHYSICAL AND ENVIRONMENTAL SCIENCES (cont'd)										
Arizona										
Univ. of Arizona	Public	+	+					+	+	
California										
Stanford Univ.	Private	+	+	+		+			+	
Univ. of California, Riverside	Public	+	+	+	+	+	+		+	
Univ. of Southern California	Private				+					
Colorado										
Univ. of Colorado, Main	Public			+						+
District of Columbia										
George Washington Univ.	Private		+							
Georgetown Univ.	Private	+	+	+					+	
Hawaii										
Univ. of Hawaii at Manoa	Public		+		+	+				
Illinois										
Northern Illinois Univ.	Public	+								+
Indiana										
Univ. of Notre Dame	Private	+	+	+						
Iowa										
Univ. of Iowa	Public		+							
Massachusetts										
Boston College	Private	+	+	+	+			+	+	+
Boston Univ.	Private	+								
Brandeis Univ.	Private				+				+	+
Clark Univ.	Private		+	+				+	+	
Michigan										
Michigan State Univ.	Public	+								
Univ. of Michigan, Ann Arbor	Public					+	+			
Nebraska										
Univ. of Nebraska at Omaha	Public						+			
New York										
Rockefeller Univ.	Private	+								
SUNY College for Environmental Science	Public	+	+	+	+	+	+	+	+	+
SUNY at Stony Brook, Main	Public	+	+	+		+				
Univ. of Rochester	Private	+	+	+						
North Carolina										
Duke University	Private		+							
North Carolina State Univ., Raleigh	Public	+		+					+	
North Dakota										
North Dakota State Univ., Main	Public	+								
Ohio										
Bowling Green State Univ., Main	Public									+
Case Western Reserve Univ.	Private									+
Miami University, Main	Public	+					+			
Oregon										
Oregon State Univ.	Public	+	+	+	+	+	+	+	+	+
Pennsylvania										
Univ. of Pittsburgh, Main	Public									+
Rhode Island										
Univ. of Rhode Island	Public	+	+				+			+
Tennessee										
Univ. of Tennessee, Knoxville	Public	+		+	+					
Texas										
Texas Christian Univ.	Private	+	+	+	+	+	+	+	+	+
Univ. of Texas at Arlington	Public		+							
Univ. of Texas at Austin, Main	Public	+	+	+						

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PHYSICAL AND ENVIRONMENTAL SCIENCES (cont'd)										
Virginia										
Virginia Polytechnic Institute and State Univ.	Public	•	•	•	•			•	•	•
Wisconsin										
Univ. of Wisconsin, Madison	Public	•	•	•		•	•		•	•
Puerto Rico										
Univ. of Puerto Rico, Rio Pedras	Public		•							

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AGRICULTURE AND NATURAL RESOURCES										
Alabama										
Auburn Univ., Main	Public		•		•		•			
California										
Loma Linda Univ.	Private							•		
Stanford Univ.	Private	•	•		•		•	•		
Univ. of California, Riverside	Public	•			•				•	•
Georgia										
Univ. of Georgia	Public		•							
Hawaii										
Univ. of Hawaii at Manoa	Public				•	•	•			
Illinois										
Univ. of Illinois, Urbana	Public	•	•	•	•	•	•	•	•	•
Indiana										
Indiana Univ. at Indianapolis	Public								•	
Massachusetts										
Clark Univ.	Private							•		
Tufts Univ.	Private	•	•	•	•	•	•	•	•	•
Michigan										
Michigan State Univ.	Public		•				•	•		
Univ. of Michigan, Ann Arbor	Public							•		
Missouri										
Univ. of Missouri, Columbia	Public						•	•		
New Mexico										
New Mexico State Univ., Main	Public		•							
New York										
SUNY Center for Environmental Science	Public	•	•	•	•	•	•	•	•	•
North Carolina										
North Carolina State Univ. Raleigh	Public		•							
Ohio										
Case Western Reserve Univ.	Private					•				
Ohio State Univ., Main	Public		•							
Oregon										
Oregon State Univ.	Public	•	•	•	•	•	•	•		•
Pennsylvania										
Duquesne Univ.	Private							•	•	•
Rhode Island										
Univ. of Rhode Island	Public	•	•			•				
South Dakota										
South Dakota State Univ.	Public		•							
Tennessee										
Univ. of Tennessee, Knoxville	Public		•				•	•		•
Texas										
Texas Christian Univ.	Private	•	•	•	•	•	•	•	•	•
Utah										
Utah State Univ.	Public	•	•					•	•	•
Virginia										
Virginia Polytechnic Institute and State Univ.	Public		•							
Washington										
Univ. of Washington	Public		•							
West Virginia										
West Virginia Univ.	Public							•		
Wisconsin										
Univ. of Wisconsin, Madison	Public		•		•	•	•	•		•

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BEHAVIORAL AND SOCIAL SCIENCES										
Alabama										
Auburn Univ., Main	Public	+	+	+	+	+	+	+	+	+
Univ. of Alabama in Birmingham	Public		+							
Univ. of Alabama	Public	+	+	+	+			+	+	
Arizona										
Univ. of Arizona	Public							+		
California										
Stanford Univ.	Private	+	+	+	+	+	+	+	+	+
Univ. of California, Irvine	Public		+							
Univ. of California, Riverside	Public							+		
Univ. of California, Santa Barbara	Public	+	+			+			+	
Univ. of Southern California	Private					+				
Univ. of the Pacific	Private					+				
Colorado										
Univ. of Colorado, Main	Public	+	+	+	+	+	+	+	+	
Connecticut										
Univ. of Connecticut, Main	Public	+								
District of Columbia										
American Univ.	Private	+	+	+	+	+	+	+	+	+
George Washington Univ.	Private		+	+	+	+				
Illinois										
Northern Illinois Univ.	Public				+			+		
Univ. of Illinois, Chicago Circle	Public	+	+		+			+		
Univ. of Illinois, Urbana	Public	+	+	+	+	+	+	+	+	+
Indiana										
Indiana Univ. at Indianapolis	Public	+	+							
Iowa										
Univ. of Iowa	Public	+			+	+	+			
Louisiana										
Louisiana State Univ., Baton Rouge	Public		+							
Louisiana Technical Univ.	Public	+	+							
Massachusetts										
Boston Univ.	Private	+	+	+	+		+	+	+	+
Clark Univ.	Private							+		
Tufts Univ.	Private	+	+	+	+	+	+	+	+	+
Michigan										
Michigan State Univ.	Public	+			+	+			+	
Univ. of Michigan, Ann Arbor	Public			+	+	+		+	+	
Missouri										
Univ. of Missouri, Columbia	Public	+	+		+			+		
New York										
New York Univ.	Private	+					+			
Saint John's Univ.	Private				+					
SUNY Health Science Center, Buffalo	Public		+		+	+	+	+	+	
SUNY at Stony Brook, Main	Public			+						
SUNY at Albany	Public	+								+
Univ. of Rochester	Private			+			+			
North Carolina										
Duke Univ.	Private	+	+	+	+	+	+	+	+	+
North Carolina State Univ., Raleigh	Public	+								
Univ. of North Carolina at Chapel Hill	Public		+	+	+	+		+	+	
Ohio										
Case Western Reserve Univ.	Private						+	+		
Miami Univ., Main	Public	+	+	+	+	+	+		+	
Ohio Univ., Main	Public		+				+	+		
Pennsylvania										
Duquesne Univ.	Private	+	+	+				+	+	+
Lehigh Univ.	Private	+	+	+	+	+	+	+	+	
Temple Univ., Main	Public		+							
Univ. of Pittsburgh, Main	Public	+	+							

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BEHAVIORAL AND SOCIAL SCIENCES (cont'd)										
Rhode Island										
Brown Univ.	Private	+	+	+	+	+	+	+	+	+
Univ. of Rhode Island	Public	+						+		
Tennessee										
Meharry Medical College	Private							+		
Univ. of Tennessee, Knoxville	Public	+	+	+			+	+		+
Texas										
Rice Univ.	Private	+	+	+	+	+	+	+	+	
Sam Houston State Univ.	Public	+								
Texas Christian Univ.	Private	+	+	+	+	+	+	+	+	+
Virginia										
Virginia Polytechnic Institute and State Univ.	Public		+							
Wisconsin										
Univ. of Wisconsin, Madison	Public	+	+	+	+	+	+	+	+	+
BIOLOGICAL SCIENCES										
Alabama										
Auburn Univ., Main	Public		+		+		+			+
Arizona										
Univ. of Arizona	Public		+						+	
California										
Loma Linda Univ.	Private									+
Univ. of California, Riverside	Public			+						+
Univ. of California, Santa Barbara	Public	+				+				
Connecticut										
Univ. of Connecticut, Main	Public		+							
Illinois										
Illinois State Univ.	Public		+							
Northern Illinois Univ.	Public		+							
Univ. of Illinois, Chicago Circle	Public	+	+		+					
Univ. of Illinois, Urbana	Public	+	+	+	+	+	+	+	+	+
Indiana										
Ball State Univ.	Public		+							
Indiana Univ. at Indianapolis	Public	+	+							
Louisiana										
Louisiana State Univ., Baton Rouge	Public		+							
Massachusetts										
Tufts Univ.	Private		+							
Michigan										
Michigan State Univ.	Public									+
Missouri										
Univ. of Missouri, Columbia	Public	+								
New Hampshire										
Dartmouth College	Private		+							
New York										
Polytechnic Institute of New York	Private								+	
at Albany	Public	+								
North Carolina										
Duke Univ.	Private	+	+						+	
Univ. of North Carolina at Chapel Hill	Public		+							
Ohio										
Case Western Reserve Univ.	Private						+	+	+	
Miami Univ., Main	Public		+	+	+	+	+	+	+	+
Univ. of Toledo	Public			+						
Oregon										
Oregon State Univ.	Public	+	+	+	+	+	+	+	+	+

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Field of Science and Name of Institution	Control	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	Other
BIOLOGICAL SCIENCES (cont'd)										
Rhode Island										
Brown Univ.	Private								•	
Univ. of Rhode Island	Public	•								
Texas										
Sam Houston State Univ.	Public	•								
Texas Christian Univ.	Private	•	•	•	•	•	•	•	•	•
Wisconsin										
Univ. of Wisconsin, Madison	Public		•				•			•
ENGINEERING										
Alabama										
Auburn Univ., Main	Public		•							•
Univ. of Alabama	Public		•		•				•	
Arizona										
Univ. of Arizona	Public		•		•				•	•
California										
Univ. of California, Santa Barbara	Public								•	
Univ. of Southern California	Private								•	
Colorado										
Colorado State Univ.	Public	•	•	•	•	•	•	•	•	
Univ. of Colorado, Main	Public	•	•							
District of Columbia										
George Washington Univ.	Private								•	
Illinois										
Illinois Institute of Technology	Private								•	
Univ. of Illinois, Urbana	Public	•	•							
Indiana										
Ball State Univ.	Public	•								
Univ. of Notre Dame	Private	•			•	•				
Iowa										
Univ. of Iowa	Public		•							
Massachusetts										
Tufts Univ.	Private	•	•							
Minnesota										
Univ. of Minnesota, Minneapolis-Saint Paul	Public	•							•	
Missouri										
Univ. of Missouri, Rolla	Public		•						•	
New Mexico										
New Mexico State Univ., Main	Public	•								
New York										
Polytechnic Institute of New York	Private	•	•			•			•	
SUNY Health Science Center, Buffalo	Public								•	
SUNY at Stony Brooke, Main	Public								•	
Univ. of Rochester	Private		•							•
Ohio										
Case Western Reserve Univ.	Private								•	
Oregon										
Oregon State Univ.	Public			•						
Rhode Island										
Brown Univ.	Private								•	
Univ. of Rhode Island	Public		•							
South Dakota										
South Dakota State Univ.	Public			•						
Tennessee										
Univ. of Tennessee, Knoxville	Public	•			•			•		

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ENGINEERING (cont'd)										
Texas										
Univ. of Texas at Austin, Main	Public		•						•	
Virginia										
Virginia Polytechnic Institute and State Univ.	Public			•						
Wisconsin										
Univ. of Wisconsin, Madison	Public	•				•		•		•
MATHEMATICAL SCIENCES										
District of Columbia										
George Washington Univ.	Private								•	
Massachusetts										
Northeastern Univ.	Private	•								
Tufts Univ.	Private		•							
Michigan										
Univ. of Michigan, Ann Arbor	Public	•								
Minnesota										
Univ. of Minnesota, Minneapolis-Saint Paul	Public	•								
New York										
Univ. of Rochester	Private	•	•		•	•	•			
Oregon										
Oregon State Univ.	Public	•						•	•	
Pennsylvania										
Univ. of Pittsburgh, Main	Public		•							
Tennessee										
Univ. of Tennessee, Knoxville	Public			•	•			•		
Texas										
Texas Christian Univ.	Private	•	•	•	•	•	•	•	•	•
Univ. of Texas at Austin, Main	Public	•								
Wisconsin										
Univ. of Wisconsin, Madison	Public	•								
MEDICINE										
Alabama										
Univ. of Alabama in Birminghan	Public								•	
Arizona										
Univ. of Arizona	Public	•								
California										
Loma Linda Univ.	Private	•	•		•			•	•	
Stanford Univ.	Private		•							
Univ. of California, Riverside	Public			•						
Illinois										
Univ. of Illinois Medical Center, Chicago	Public	•	•				•		•	
Indiana										
Ball State Univ.	Public	•								
Indiana Univ. at Indianapolis	Public	•	•						•	
Iowa										
Univ. of Iowa	Public	•								
Kansas										
Kansas State Univ. of Agriculture and Applied Science	Public							•		
Massachusetts										
Northeastern Univ.	Private	•	•						•	
Tufts Univ.	Private								•	
New York										
SUNY Health Science Center, Buffalo	Public	•							•	
Univ. of Rochester	Private	•	•	•		•			•	•

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MEDICINE (cont'd)										
Ohio										
Case Western Reserve Univ.	Private			•			•	•	•	•
Pennsylvania										
Univ. of Pittsburgh, Main	Public	•							•	
Tennessee										
Meharry Medical College	Private							•		
West Virginia										
West Virginia Univ.	Public		•							
Wisconsin										
Medical College of Wisconsin	Private								•	
Univ. of Wisconsin, Madison	Public		•						•	
PHYSICAL AND ENVIRONMENTAL SCIENCES										
Alabama										
Auburn Univ., Main	Public	•	•	•						•
Arizona										
Univ. of Arizona	Public								•	
California										
Stanford Univ.	Private	•	•	•	•	•			•	
Univ. of California, Riverside	Public			•	•		•		•	
Univ. of California, Santa Barbara	Public	•				•		•	•	
Colorado										
Univ. of Colorado, Main	Public									•
District of Columbia										
Georgetown Univ.	Private	•	•	•					•	
Illinois										
Northern Illinois Univ.	Public	•								•
Indiana										
Univ. of Notre Dame	Private	•								
Massachusetts										
Boston College	Private		•							
Brandeis Univ.	Private									•
Clark Univ.	Private							•	•	
Tufts Univ.	Private		•							
Michigan										
Univ. of Michigan, Ann Arbor	Public					•	•			
Nebraska										
Univ. of Nebraska at Omaha	Public						•			
New Hampshire										
Dartmouth College	Private	•	•							
New York										
SUNY College for Environmental Science	Public	•	•	•	•	•	•	•	•	•
SUNY at Stony Brook, Main	Public		•							
North Dakota										
North Dakota State Univ.	Public	•								
Ohio										
Bowling Green State Univ., Main	Public									•
Miami Univ., Main	Public	•					•			
Oregon										
Oregon State Univ.	Public	•	•	•	•	•	•	•	•	•
Pennsylvania										
Duquesne Univ.	Private							•		
Rhode Island										
Univ. of Rhode Island	Public		•				•			•

Directory of U.S. Higher Education Institutions Having Formally Organized Teaching Programs Dealing with World Regions 1977
(cont'd)

Field of Science and Name of Institution	Control	Western Europe	Latin America and the Caribbean	East Europe, including U.S.S.R.	Far East, excluding Japan	Japan	South Asia	Black Africa (South of the Sahara)	Near and Middle East and North Africa	Other
PHYSICAL AND ENVIRONMENTAL SCIENCES (cont'd)										
Tennessee										
Univ. of Tennessee, Knoxville	Public				•					
Texas										
Texas Christian Univ.	Private	•	•	•	•	•	•	•	•	•
Univ. of Texas at Austin, Main	Public		•							
Puerto Rico										
Univ. of Puerto Rico, Rio Piedras	Public		•							

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American Council on Education

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Single copies of the above reports may be obtained from the Higher Education Panel, American Council on Education, One Dupont Circle, Washington, D. C. 20036.